

Review of the Vermont's Statewide Education Information Technology Plan

The last time Vermont's Statewide Education Information Technology Plan was reviewed was in October 1996. Since 1996 much has happened in education and the information technologies. Schools have better access to the Internet. More students and teachers have access to computers that are networked. Teachers and school leaders have more access to professional development that is aimed at using information technology tools for the improvement of teaching and learning. The progress has been steady, but many questions and much work still remains. It is important that our schools and communities develop systems that effectively use information technologies to improve learning for all students.

The purpose of this review is to determine a "current status" of the Plan and give guidance to a writing team that will revise Plan in 2000. The review will also supply information that can be used by the writers to develop a revised Plan that schools, communities, policymakers and researchers can use as framework as:

- a vision that will define expectations for the public investments in K-12 learning technology;
- a self-assessment tool that assists schools, districts and the state to gauge their own progress toward that vision;
- a planning tool for strategizing how to bring technology and telecommunications into their systems in ways which improve student learning;
- an accountability system for tracking the return on public investments in educational technology; and,
- a research agenda that will help guide studies of how and under what conditions technology is an effective tool for learning.*

* Technology in American Schools: Seven Dimensions for Gauging Progress, Milken Exchange on Education Technology <http://www.milkenexchange.org>

Early Planning Work

A 1983 publication *Computer Considerations for Vermont Schools* by Jim Lengel (Lengel was Director of Basic Education at the Vermont Education Department) gave schools in the state early advice about the use of computers in the classroom. The 20 page booklet offered sections "A Plan for Computers in the Curriculum," "A Computers and Curriculum Matrix" and "Developing Your School's Computer Plan."

A 1984 report to the Vermont State Board of Education indicated that in terms of the ratio of students to computers the state was doing well.

“In Vermont, there were about 1,500 microcomputers in elementary and secondary schools in 1983. The ratio of students to computers is 67:1 compared to a national ratio of 125:1. By this standard, Vermont schools are doing well.”

The report indicated that large portion of the hardware purchases by schools was financed by Federal funds (Title II). The report listed a number of important policy issues that needed to be addressed by the state.

Equity – “student access to computers has been limited”

Professional Development – “only a few teachers in a school use computers for instructional purposes”

Learning with Computers – “main instructional focus has been on computer literacy, drill and practice and programming”

Use of Emerging Technologies – “West Virginia has started implementation of a system that will link all of its schools to the State Department of Education through a statewide telecommunications bulletin board”

The report made several recommendations. Among them were:

“Through regional teams, assess the training needs of teachers and administrators and deliver these services to our teachers through the Inservice Institute.”

“Sponsor an annual large scale conference that focuses on the potential offered at the horizons of technology and publicizes the positive contribution made by computers in education.”

The role of the state in the future use of computers was outlined:

“For the present at least, state policy should position the Department to lead our schools into the future. The Department is the only education institution in the state in a position to deal with changes taking place at the frontiers of technology.”

From the time of the publication of *Computer Considerations for Vermont Schools* and the 1984 report until 1996 the state was without a formal plan for the use of information technology in schools. In 1986 IBM provided funds for a state report on the use of information technologies in schools but the report didn't result in a state plan. A document, *Information Technology and the Vermont Education* produced in 1990 by the Vermont State Technology Council (in cooperation with the Vermont Department of Education) but it wasn't a formal state plan.

In 1996 The Vermont Department of Education (SDE) and the Vermont State Technology Council assisted by the Center for Educational Leadership in Technology in Marlborough, Massachusetts established a Statewide Education Information Technology Plan. The purpose of the plan was to report on the current status of information technology use in Vermont schools and to generate a series of recommendations regarding actions that Vermont should take to build and support the information technology capacity needed by Vermont schools. The writing of the plan was financed by a new Federal grant program-Technology Literacy Challenge Fund (TLCF).

A preliminary version of the plan was presented to the State Board of Education in October 1995. In May 1996, the final plan was published and disseminated to educators and other key partners across Vermont. The final plan was designed to serve as a direction setting document to guide Vermont's development of a comprehensive information technology system.

<http://www.vismt.org/programs/infotech/stateplan/state.htm>

In October 1996 a progress report was submitted to the State Board of Education. Since then no reports have submitted to the Board.

<http://www.vismt.org/programs/infotech/stateplan/progress/status.htm>

Status Review of Vermont's Statewide Education Information Technology Plan

The following status review uses the framework used in the last status review to the State Board of Education in 1996. **Recommendations** from the Plan are followed by the **Actions** required and the **Status** of the Action. The Status includes the agency responsible and a timeline for the Action.

The 1999 Status Review indicates **Current Status** of the Action and adds two areas: **Implications for the Revised Plan** and **Citations** of information that was used to determine the Current Status.

RECOMMENDATION ONE: Provide equity of access to information technology resources, facilities and training to all Vermont schools.

Action 1: Establish resources, conditions and practices necessary to ensure adequate access to information technology. (State Board of Education (SBE) should take action by - 9/96)

Current Status : On-going

- In 1997 the Vermont Education Department (VDE) began to receive funds from the United States Department of Education program *Technology Literacy Challenge Fund* <http://www.ed.gov/Technology/TLCF/> These funds are for the improvement of learning through the use of information technologies. In order to receive funds the school has to

have a state approved local information technology plan and have a student population that is in economic need. In 1997 the VDE received and distributed \$949,999.00 in TLCF grants. In 1998, \$2,017,547. In 1999, \$1,961,402. Total to date - \$4,928,948 have been received from the TLCF to support information technology needs in poor and needy schools with approved local information technology plans. In 1998 and 1999 25% of these funds had to be used for professional development related to the use of information technology tools to improve teaching and learning.

- In 1996 the Vermont State Legislature allocated \$500,000 for the improvement of school networks for accessing the Internet. These funds were combined with TLCF and awarded to schools in 1997. 75 school districts reviewed funds to improve access to the Internet. In 1996 40% schools in the state had Internet. By 1997 this had jumped to 77%. Currently 98% of the schools have access.

- Since 1996 Bell Atlantic has contributed \$659,500 toward information technology initiatives in education across the state. Much of these funds have gone to professional development initiatives carried out by the Vermont Educational Telecommunications Consortium (VETC) and the Vermont Information Technology Association for Learning (VITA-Learn). Many of the Bell Atlantic funds were matched by funds or equipment from IBM.

- The WEB project a consortium of Vermont schools and educational groups was awarded \$2,500,000 Technology Innovation Challenge grant from the US Office of Education. Grant provided professional development for teachers in the use of information technology in the arts. <http://www.ed.gov/Technology/challenge/>, <http://www.webproject.org/info/index.shtml>

- On May 7, 1997, the Federal Communications Commission (FCC) adopted a Universal Service Order (<http://www.sl.universalservice.org/default.asp>) implementing the Telecommunications Act of 1996. The Order ensures that all eligible schools and libraries have affordable access to modern telecommunications and information services. Up to \$2.25 billion annually is available to provide eligible schools and libraries with discounts, often referred to as the "E-rate," for authorized services, beginning January 1, 1998. In 1998 Vermont schools and libraries received \$2,027,333 in E-rate funds. <http://www.vismt.org/programs/infotech/erate/info/waves.htm>

- In November 1999, IBM and the Vermont Education Department released "Wired for Learning" a WWW-based application to support the implementation of standards-based curriculum, instruction and assessment and supports the attainment of standards by all Vermont standards. "Wired for Learning" was developed using \$2,000,000 of IBM funds from the Reinventing Education Project. The funds also provided professional development for teams of teachers from 5 regions in the state. The "Putting Standards into Action" project brought teams of teachers together to work with standards-based education and information technology tools. <http://www.edweek.org/ew/ewstory.cfm?slug=15online.h19&keywords=Wired%20for%20Learning>

- In 1999 the Vermont Education Department and the Vermont Institute for Science, Math and Technology received in-kind contributions to support access to information technology for teaching and learning.

- \$240,000 from Microsoft – Support for Certified Microsoft Training Center with 8 sites.
- \$9,356,000 from Cabletron – Donation of network switches
- \$2,600 from Smartboard – Donation of Smartboard equipment

- In 1993 Apple Computer as part of the New American Schools Project funded the Morristown School District as a Teacher Development Center for technology integration. Through funding from the Vermont Education Department, VISMT, and TLCF grants the TDC operated as a statewide professional development center until spring of 1999. The TDC worked with educators to explore how information technology can be used as a powerful tool for learning. Since 1994 over 250 Vermont educators completed 3-5 day practiciums at the TDC.

- Data from the 1998 Quality Education Data (QED) survey and Education Week's Technology Counts 1999 indicates:

- In Vermont 98% of the schools have Internet access
In the United States 90% of the school have Internet access
Most of this growth in Vermont has taken place since 1995 and was a result of funds from the state and federal government for network development.
- In Vermont the ratio of students per all computers was 5.4. (In Vermont in 1996 the ratio was 6.8.) In the United States in 1998 it was 5.7 for all computers.
- In Vermont the ratio of students per new generation computers was 13.8. (In Vermont in 1996 it was 9.7)
In the United States in 1998 it was 9.8 new generation computers
- In Vermont the ratio of students per Internet computers was 11.8
In the United States it was 13.6 per Internet computers
- In Vermont the ratio of students per multimedia computers in high poverty schools was 8.6. In all other schools it was 12.3 *
In the United States it was 11.3 in high poverty schools. In all other schools it was 9.9 *

- In Vermont the ratio of students per Internet-connected computer in high poverty schools was 10.7. In all other schools it was 11.9 *
- In the United States the ratio of students per Internet-connected computer in high poverty schools was 19.2. In all other schools it was 13.3*

In Vermont the number of schools connected to a LAN was 77%. (In Vermont in 1996 it was 46%)

In the United States the number of schools connected to a LAN was 23%

* This data was obtain from the Technology Counts report and not the Quality Education Data Survey. (QED)

Other information can be obtained at the following sites:

<http://www.vismt.org/programs/infotech/research/99techrpt.htm>

<http://www.edweek.org/sreports/tc99/>

<http://qeddata.com>

- In 1997 the Vermont Education Department and VISMT conducted grant writing workshops where participants were taught about general grant writing skills with a focus on the specifics of the TLCF grant program. Unsuccessful TLCF applicants were provided detailed comments about their proposals and given assistance to upgrade the proposal. In 1998 and 1999 school-based teams were brought together for two –three day conferences/seminars to participate in professional development activities aimed at improving their TLCF proposals. Each school team was assigned a facilitator that assisted them during and after the conference.
- The University of Vermont has established a Digital Media Development Lab (DMDL). The Lab offers a setting to discover new technology tools and the opportunity to work with instructional designers, programmers and graphic artists in developing new ways to integrate information technology into the curriculum. Recently VITA-Learn has started to use the Lab for professional development for educators.
- St. Michael's and Marlboro College have designed Master Degree programs in information technology for educators and non-educators. The State Collage's and the University of Vermont offer individual courses for educators but do not have degree programs in the education use of information technologies.

Action 2: Develop specific measurable indicators for on-going use to determine the degree to which schools are accessing adequate information technology. (SBE - By 10/96)

Current Status: In place and on going

An annual survey with specific indicators to determine access of adequate information technology was developed with Quality Education Data (QED) in 1997. All schools in

the state complete the QED survey. The VDE/VISMT also reports annually to the USOE on a set of indicators to determine Technology Literacy Challenge Fund performance.

Action 3: Collect and report on indicators on an on-going basis. (SBE - annually)

Current Status: In place and on going

The VDE/VISMT and Quality Education Data (QED) conduct an annual survey. Baseline data was collected in December 1997. Data was collected in 1998 and will be collected in 1999. The data is reported in the VDE School Report. <http://crs.uvm.edu/schlrpt/> Data from the 1998 QED survey is report in a special 1999 Vermont School Technology Report. <http://www.vismt.org/programs/infotech/research/99techrpt.htm> Data was also part of *Education Week's* "Technology Counts" in 1998 and 1999.

Implications for revised plan –Recommendation 1

Action 1: Establish resources, conditions and practices necessary to ensure adequate access to information technology.

Since 1997 when schools began receiving grants from the Technology Literacy Challenge Fund (TLCF) access by schools in the state to information technology resources, facilities and professional development has great increased. Using the TLCF grants schools have improved the ratio of students to new generation computers, built networks, improved infrastructure and provided professional development for teachers and school leaders. Schools with a high poverty level student population have benefitted greatly. The funds have done what they were intended to do for schools in the state.

The state can't expect to continue to receive Federal funds for the improvement of access to information technology tools to continue forever. The new plan must include strategies that insures that this investment of Federal monies will be protected by increased funds from the state legislature, partnerships with businesses, collaborations with high education, and local school budgets.

Action 2: Develop specific measurable indicators for on-going use to determine the degree to which schools are accessing adequate information technology.
and

Action 3: Collect and report on indicators on an on-going basis

- Do a literature search on work being done in the area of assessing the use of information technology in relation to the improvement of student performance.
- Recommend that research be funded to document the impact of information technology on student learning under varying conditions. Disseminate this data and help schools use it.

- Design the plan so it requires that new student performance measures be developed to reliably assess the impact of technology on learning. Recommend that information technologies be used to provide more sensitive and cost effective testing options. Assist schools in using data to drive better decision making.
- Design the plan so it recommends that the digital divide be tracked by disaggregating data by student population. Recommend that both student achievement data and school-based data be used as interim progress indicators of learning and information technology.

CITATIONS - Recommendation One:

Action 1: Establish resources, conditions and practices necessary to ensure adequate access to information technology.

Technology Literacy Challenge Fund - USOE
<http://www.ed.gov/Technology/TLCF/>

Technology Literacy Challenge Fund – VDE
<http://www.vismt.org/programs/infotech/TLCF/tlcf2.htm>

WEB Project
<http://www.webproject.org/info/index.shtml>

Technology Literacy Challenge Innovation Grants
<http://www.ed.gov/Technology/challenge/>

Universal Services Order – E-rate
<http://www.sl.universalservice.org/default.asp>

E-rate funding in Vermont
<http://www.vismt.org/programs/infotech/erate/info/waves.htm>

1999 Vermont School Technology Report
<http://www.vismt.org/programs/infotech/research/99techrpt.htm>

Education Week – Technology Counts 99
<http://www.edweek.org/sreports/tc99/>

Action 2 and 3: Collect and report on indicators on an on-going basis.

Vermont Department of Education School Report

<http://crs.uvm.edu/schlrpt/>

1999 Vermont School Technology Report

<http://www.vismt.org/programs/infotech/research/99techrpt.htm>

RECOMMENDATION 2: Provide educators with the professional development, equipment, time and on-going support so they can use information technology to strengthen instruction so that all students reach the standards outlined in *Vermont's Framework of Standards and Learning Opportunities*.

Action 4: Develop preservice and relicensure requirements for Vermont educators. (PSB/VSTC/VETC/VISMT -By March 1996)

Current Status: On-going

The Vermont Standards Board for Professional Educators with the assistance of VISMT started reviewing current endorsements in science, math, and technology in 1996. VISMT submitted a draft set of new requirements in 1996. In 1998 the Board invited VITA-Learn to submit ideas for the new certification standards in light of the potential elimination of the "Computer Science" endorsement. The new standards include a set of information technology standards for all teacher licensees. New endorsement requirements for a "Technology Teacher" and for a "Technology Coordinator" were also submitted. The submitted information technology standards are aligned with the International Society for Technology Education's (ISTE) *National Educational Standards for Students*.. The Board is currently reviewing the draft.

The following are the proposed information technology standards for all educators.

Information Technology Standards Expected of All Educators

The following information technology standards will be demonstrated by each applicant seeking initial licensure or endorsements in any field in order to meet General Educator Principle #9 which states:

The educator integrates current technologies in instruction, assessment, and professional productivity.

1. Basic Computer/Technology Operations and Concepts

Applicants will use computer systems to run software; to access, generate and manipulate data; and to publish results. They will also evaluate performance of hardware and software components on computer systems and apply basic troubleshooting strategies as needed.

2. Personal and Professional Use of Technology

Applicants will apply tools for enhancing their own professional growth and productivity. They will use technology in communicating, collaborating, conducting research, and solving problems.

3. Applications of Technology in Instruction

Applicants will apply computers and related technologies to support instruction in their grade levels and subject areas by offering instructional units that integrate a variety of software, applications, and learning tools.

<http://www.milkenexchange.org>
<http://iste.org/Standards/NCATE/index.html>
http://www.ctc.ca.gov/technology_pamphlet.pdf
<http://www.ctc.ca.gov/ceap/ceap.html#24.5>

Action 5: Identify local professional development needs. (SDE) - By 9/96)

Current Status: On-going

The 1998 Quality Education Data survey asked schools to determine on average, what are the skill levels of teachers and administrators in the use of information technology for instruction. Schools reported the following:

| Skill Level | Teachers | Administrators |
|------------------------------------|----------|----------------|
| Beginner (Intro to Operations) | 22% | 11% |
| Intermediate (Use of Applications) | 50% | 63% |
| Advanced (Curriculum Integration) | 20% | 18% |
| Instructor (Teaches Applications) | 8% | 8% |

The survey also asked schools how many hours they offered or scheduled for professional development for teachers and administrators to learn or upgrade their technology and computer skills

| Skill Level | Teachers | Administrators |
|------------------------------------|----------|----------------|
| Beginner (Intro to Operations) | 13.8% | 14.6% |
| Intermediate (Use of Applications) | 20.0% | 16.7% |
| Advanced (Curriculum Integration) | 16.4% | 15.1% |
| Instructor (Teaches Applications) | 15.7% | 14.3% |

<http://www.vismt.org/programs/infotech/research/99techrpt.htm>

The Vermont Information Technology Association for Learning (VITA-Learn) has five regional sites that offer information technology professional development for teachers and administrators. Each of those sites surveyed the information technology needs of schools in their regions and offers professional development to meet those needs. In 1998

VITA-Learn offered sessions in over 40% of the schools in the state and over 1,400 participants attended those sessions. <http://www.vita-learn.org>

Action 6: Coordinate resource exchange for professional development. (SDE - By 9/96)

Current Status: On-going

In 1996 two statewide organizations providing professional development to teachers began conversations about merging into one organization. In 1997 the Vermont State Technology Council (VSTC) and the Vermont Educational Telecommunication Consortium (VETC) merged into one organization, the Vermont Information Technology Association for Learning (VITA-Learn). VITA-Learn receives funding from Bell Atlantic and a state TCLF grant. The funds are used to coordinate professional development in a 5-region area in the state. (See Recommendation 2, Action 5) <http://www.vita-learn.org>

Action 7: Establish standards that identify effective professional development programs in information technology. (VSTC/VISMT - By 9/96)

Current Status: No action

The capacity to do this work was not available in the Vermont State Technology Council (VSTC) or the Vermont Institute for Science, Math and Technology (VISMT) to do this work. Only recently have national groups build the frameworks necessary for states and local schools to build standards for information technology professional development. Several local schools have started developing student and teacher standards in alignment with the work being done by ISTE and Milken.

<http://iste.org/Standards/NCATE/index.html>
http://www.ctc.ca.gov/technology_pamphlet.pdf
<http://www.ctc.ca.gov/ceap/ceap.html#24.5>
<http://www.milkenexchange.org/publication.taf>

Action 8: Develop local information technology plans with strong professional development components linked to comprehensive school improvement plan. (local - By 9/96)

Current Status: On-going

Over 93% of local school have State approved plans. These plans must have a professional development component. Schools receiving TLCF grants must use 25% of their grants for professional development that supports the use of information technology tool for the improvement of teaching and learning. These plans must be revised every two years.

The plans must be coordinated with local school Action Plans. The Vermont Education Department and VISMT assist schools in the development of local plans. (See Recommendation 5, Action 24)

<http://www.vismt.org/programs/infotech/planning/planning.htm>

Implications for the revision of plan - RECOMMENDATION 2:

Action 4 : Develop pre-service and re-licensure requirements for Vermont educators.

The revised plan should contain strategies that the Vermont Education Department, VISMT and VITA-Learn will use to ensure the Vermont Standards Board for Professional Educators acts quickly on the issue of developing pre-service and re-licensure requirements for Vermont educators. The proposed information technology standards for educators(see above) need review and strengthening. The standards need to apply not only to newly licensed teachers but to those seeking re-certification. The Plan should recommend that the Board refer to actions from national and state reports and place a deadline on the completion of the pre-service and re-licensure requirements for Vermont educators. The group revising the Plan should work closely with the director of the new Title II grant received by the VED and VISMT to develop a Statewide Professional Development System.

<http://iste.org/Standards/NCATE/index.html>

http://www.ctc.ca.gov/technology_pamphlet.pdf

<http://www.ctc.ca.gov/ceap/ceap.html#24.5>

<http://www.milkenexchange.org/publication.taf>

Action 5: Identify local professional development needs.

The revised plan should recommend that better data be gathered on the professional development needs of teachers and school leaders on the use of information technology tools for improvement of student learning. The existing data is mostly self reported. The plan should recommend that this data be used by the Vermont Education Department, VISTM, VITA-Learn, higher education and schools to distribute resources for professional development planned around the indicated needs. The plan should recommend that schools begin to use on-line professional proficiency profiles to measure the professional development needs of teachers and school leaders.

http://www.mff.org/edtech/publication.taf?_function=detail&Content_uid1=159

<http://cnets.iste.org/TeacherStandards.html>

<http://www.apple.com/education/k12/leadership/acot>

<http://www.ncrtec.org/capacity/profile/profile.htm>

<http://www.ceoforum.org>

Action 6: Coordinate resource exchange for professional development.

VITA-Learn should be charged to develop a professional development collaborative of the Vermont Education Department, VISMT, UVM, the State Colleges, K-12 schools and businesses. This collaborative should make decisions about how to obtain and use resources for professional development. It also should be charged to develop a set of professional development standards for teachers and school leaders. The collaborative should be aligned with the state professional development system.

Action 7: Establish standards that identify effective professional development programs in information technology.

See Action 6. The Milken Exchange for Educational Technology has developed a continuum of information technology professional experiences for teachers. The plan should recommend the use of this continuum across the state. VITA-Learn with VDE/VISMT should lead the statewide development of standards for information technology professional development that align with the Milken continuum and the work being done by ISTE on teacher standards.

<http://www.milkenexchange.org/publication.taf>

<http://iste.org/Standards/NCATE/index.html>

http://www.ctc.ca.gov/technology_pamphlet.pdf

<http://www.ctc.ca.gov/ceap/ceap.html#24.5>

Action 8: Develop local information technology plans with strong professional development components linked to comprehensive school improvement plan.

Continue the requirement of local information technology plans with revisions every two years. Be sure that local information technology plans are aligned with Act 60 School Action Plans.

CITATIONS - RECOMMENDATION 2:

Action 4: Develop preservice and relicensure requirements for Vermont educators.

International Society for Technology Education (ISTE)
National Educational Technology Standards for Students
<http://cnet.iste.org>
National Foundations in Technology for All Teachers
<http://iste.org/Standards/NCATE/index.html>

Milken Exchange for Educational Technology
Professional Development Continuum
http://www.mff.org/edtech/publication.taf?_function=detail&Content_uid1=159

California Commission On Teacher Credentialing
http://www.ctc.ca.gov/technology_pamphlet.pdf
<http://www.ctc.ca.gov/ceap/ceap.html#24.5>

Action 5: Identify local professional development needs.

Vermont Institute for Science, Math and Technology (VISMT)
1999 Vermont School Technology Report
<http://www.vismt.org/programs/infotech/research/99techrpt.htm>

Vermont Information Technology Association for Learning (VITA-Learn)
<http://www.vita-learn.org>

Milken Exchange for Educational Technology
Professional Development Continuum
http://www.mff.org/edtech/publication.taf?_function=detail&Content_uid1=159

International Society for Technology Education (ISTE)
National Educational Technology Standards for Teachers
<http://cnet.iste.org/TeacherStandards.html>

Apple Classrooms of Tomorrow (ACOT)
<http://www.apple.com/education/k12/leadership/acot>

North Central Regional Technology Education Consortium
<http://www.ncrtec.org/capacity/profile/profile.htm>
CEO Forum
<http://www.ceoforum.org>

Actions 6 Coordinate resource exchange for professional development. and **7** Establish standards that identify effective professional development programs in information technology.

The Milken Exchange n Educational Technology
Profession Development Continuum
<http://www.milkenexchange.org/publication.taf>

International Society for Technology Education (ISTE)
National Foundations in Technology for All Teachers
<http://iste.org/Standards/NCATE/index.html>

California Commission On Teacher Credentialing
http://www.ctc.ca.gov/technology_pamphlet.pdf
<http://www.ctc.ca.gov/ceap/ceap.html#24.5>

RECOMMENDATION 3: Use information technology as a tool in the curriculum to maximize learning results.

Action 9: Show how information technology is an integral part of the Vermont Framework (SDE/VISMT – By June 1996)

Current Status: No action

The *Vermont Framework of Standards and Learning Opportunities* includes 5 Information Technology Standards that are part of the Communication Standards in the Vital Results section. The Information Technology Standards contain no guidelines of the evidence needed to determine if students have met the standards. This makes the Standards unuseable by teachers and students. No action has been taken in this area since the plan was adopted.

Several supervisory unions in the state have started work on the development of information technology standards for students.
http://www.acsu.k12.vt.us/ITPref_Targets.html

<http://rebel.sbur.lk12.vt.us/matrix/htm>
<http://vetc.vsc.edu/anesu/techplan/techplan.htm#matrix>

All of the work is being done in alignment with the International Society for Technology in Education (ISTE) National Educational Technology Standards for Students. (NETS)
<http://cnets.iste.org>

Action 10: Identify classrooms that Vermont educators can visit to see information technology being integrated effectively into instruction. (VSTC/VISMT - By 9/96)

Current Status: On-going

In September 1997 the VDE and VISMT established an office of School Information Technology. To operate the Office Phil Hjyck was hired as School Information Technology Specialist and Bill Romond as Information Technology Planning Specialist. The TLCP is used to fund the office. This office has started the collection of information about classrooms in the state effectively using information technology to improve teaching and learning.

See also Recommendation 4, Action 14, **Current Status**

Action 11: Establish a resource list and lending library of information technology implementation strategies and models for all grade level ranges. (Regional Lab - By 9/96)

Current Status: On-going

See Action 10 and Recommendation 4, Action 14, Current Status

Implications for the revised plan - Recommendation 3

Action 9: Show how information technology is an integral part of the Vermont Framework

The revised plan should contain strategies for the development of information technology standards for students and teachers (see Implications – Recommendation. 2 – Action 6) at the state and local level. The writers of the revised plan should work with VDE, VISMT and VITA-Learn to determine the best way to implement these standards. These standards should be aligned with the ISTE National Educational Standards for Students and the Milken Exchange on Educational Technology Professional Development Continuum. VITA- Learn in collaboration with the School Information Technology Office should take the leadership in this action. It is important that VITA-Learn and the School Information Technology Office work with local schools to get these standards integrated in the standard-based content frameworks of the schools. Local information technology committees need to “find” their ways into the schools curriculum process. At the same time the information technology standards are being disseminated VITA-Learn

and the School Information Technology Office should begin to develop tools that local schools can use to assess their information technology systems K-12 – a “information technology audit” process. <http://cnets.iste.org>
<http://milkenexchange.org>

Action 10: Identify classrooms that Vermont educators can visit to see information technology being integrated effectively into instruction.

The plan should recommend that VITA-Learn and VISMT use the “Standards into Action” database and information from the VITA-Learn 5 regions as baseline data to establish a Web based information technology resource center. An information technology point of contact person should be identified in each school building. (See also Recommendation 4, Action 14, **Current Status**)

Action 11: Establish a resource list and lending library of information technology implementation strategies and models for all grade level ranges

See above Action 10

CITATIONS- RECOMMENDATION 3

Action 9: Show how information technology is an integral part of the Vermont Framework

Addison Central SU –

http://www.acsu.k12.vt.us/ITPref_Targets.html

South Burlington School District

<http://rebel.sburl.k12.vt.us/matrix/htm>

Addison Northeast SU

<http://vetc.vsc.edu/anesu/techplan/techplan.htm#matrix>

International Society for Technology in Education (ISTE)

National Educational Technology Standards for Students (NETS)

<http://cnets.iste.org>

Milken Exchange on Education Technology
Professional Development Continuum.

<http://milkenexchange.org>

RECOMMENDATION 4: Establish standards for building construction and/or renovation, equipment, support personnel, system/network compatibility, and interoperability.

Action 12: Form a statewide information technology standards committee. (SDE - By 9/96)

Current Status: No action

There is no statewide information technology standards committee. In 1997 Bob McNamara (VDE) and Phil Hyjek (VISMT) presented a plan that contained quality indicators to VDE committee. The committee or VDE never acted upon the plan. This plan could be developed into a set of school facility information technology standards. (See Recommendation 3 – Action 9)

Action 13: Update state school facility standards for the implementation of information technology. (SDE - By 9/96)

Current Status: On-going

The Vermont Education Department (VED) now advises schools to include technology planning as a part of facilities reviews and school construction plans. The Department is building the knowledge and skills of the school construction staff through participation in national and regional workshops that address this issue.

The Department informs schools that are planning on purchasing technology of additional resources that are available through other state offices.

Action 14: Locate models for information technology infrastructure and guide interested parties to them.
(SDE - By 9/96)

Current Status: On-going

As part of a “roll out” for the IBM/Vermont Department of Education Reinventing Education Collaboration “Standards into Action” an information technology “point of contact” person is being established in each school building in the state. This will lead to more information about information technology infrastructures in Vermont schools. The VITA-Learn regional groups are also developing a “point of contact” database. This work could be used as a “baseline” for Recommendation 3, Actions 10 and 11 as well as this Action. Information on infrastructure has been collected as a result of the Quality Education Data Survey and the TLCF reports on grants to schools. This information has not been collected in the form of a guide.

Implications for the revised plan

Action 12: Form a statewide information technology standards committee

The revised plan should recognize the information technology standards work being done by local schools in the state. This work should be used to develop a statewide set of standards aligned to the ISTE National Education Technology Standards for Students (NETS). The plan should recommend that a statewide information technology standards advisory be formed. VITA-Learn and VDE/VISMT should take the lead in the establishment of an information technology standards committee. This advisory committee should advise schools on standards for students, teachers, school leaders and school infrastructure for information technologies. Members on this advisory committee should meet on a bi-monthly basis and should be twice yearly 2-3 day professional development sessions to ensure their knowledge base is up to date.

http://www.acsu.k12.vt.us/ITPref_Targets.html
<http://rebel.sburl.k12.vt.us/matrix/htm>
<http://vetc.vsc.edu/anesu/techplan/techplan.htm#matrix>
<http://cnets.iste.org>
<http://milkenexchange.org>

Action 14: Locate models for information technology infrastructure and guide interested parties to them.

The plan should recommend that the work bring done (Recommendation 3, Action 10 and 11) be continued and coordinated with the “Wired for Learning” efforts.
(Recommendation 4, Action 14 - **Current Status**)

CITATIONS – RECOMMENDATION 4:

Action 12

Addison Central Supervisory Union
http://www.acsu.k12.vt.us/ITPref_Targets.html

South Burlington School District
<http://rebel.sburl.k12.vt.us/matrix/htm>

Addison Northeast Supervisory Union
<http://vetc.vsc.edu/anesu/techplan/techplan.htm#matrix>

International Society for Technology in Education (ISTE)
National Educational Technology Standards for Students (NETS)
<http://cnets.iste.org>

Milken Exchange on Education Technology
Professional Development Continuum. <http://milkenexchange.org>

RECOMMENDATION 5: Make the funding of information technology and its application a priority at the state and local levels.

Action 15: Adopt and publish the statewide information technology plan. (SBE - By 6/96)

Current Status: In place – currently under review

The final report was of Vermont's Statewide Education Information Technology Plan published in February 1995. It was reviewed and adopted by the Vermont State Board of Education in May 1996. A status report was given to the Board in October 1996.

School districts, schools, professional organizations, related state agencies, the administration and key legislators have received a copy of the Executive Summary and Key Findings and Recommendations of the plan in June 1996.

Action 16: Encourage school districts to budget line items to support information technology (SDE – By 6/96)

Current Status: Planning stage

It not known how many schools have budget line items to support information technology. There is no information about how much local schools are spending on information technologies and the support of the use for learning. Plans are currently under way to obtain this information in the 1999 QED survey. Data has been collected but is not yet available

Action 17: Increase state appropriations for information technology resources. (Governor/Legislature -5/96)

Current Status: No action

The last state funds available to schools for information technology resources were allocated in 1997 and awarded to schools in 1998 (see RECOMMENDATION ONE: Action 1).

Action 18: Identify current state, federal, and other funding sources that are available to support information technology. (SDE - By 4/6)

Current Status: On-going:

Since approval of the State K-12 Information Technology Plan in 1996 schools in the state have received funds from the state, federal and corporate funding sources. (see RECOMMENDATION ONE: Action 1). Currently funding is coming from federal and corporate sources. No state funds have been available to schools since 1998.

Action 19: Identify areas where statewide procurement of information technology resources will reduce costs. (Chief Information Officer - 5/96)

Current Status : Complete

Vermont schools and districts can purchase information technology hardware at state negotiated prices.

Action 20: Publish information about compatibility of various administrative applications. (SDE - By 12/96)

Current Status: On-going

The Vermont Education Department recently surveyed schools asking what software they have for financial and student management. There is momentum building a larger buying coop-possibly statewide to purchase and support a high quality student information system.

Action 21: Develop models and provide professional development to support effective information technology for district curriculum integration and school management. (VPA/VSA/VSBA/VASBO - By 12/96)

Current Status: In progress

VASBO is working with UVM to increase the knowledge and skills of business managers in the effective use of information technology for school administrative functions.

Action 22: Integrate administrative applications with statewide reporting. (SDE - By 9/97)

Current Status: In Progress

The management information study completed by the department on 9/18/96 includes a recommendation to establish a single management information system, and that collection and reporting be done with common software. Actions being taken to implement the system will result in fulfilling this recommendation.

Action 23: Disseminate the statewide plan to local schools and districts. (SDE - By 6/96)

Current Status: Complete

Executive Summary and Key Findings and Recommendations were distributed through the principal to every school in the state. Every superintendent received a complete plan including the four Guides: Professional Development; Curriculum Improvement through Integrating Information Technology; Technological Recommendations and Standards; Local Information Technology Planning. The Plan can be found on the WWW at: <http://www.vismt.org/programs/infotech/stateplan/state.htm>

Action 24: Provide planning resources, guidelines and technical assistance to support local school district information technology planning that is part of comprehensive school planning. (SDE/VISMT -9/96)

Current Status: On-going

In 1997 the VDE awarded the Vermont Institute for Science, Math and Technology (VISMT) \$100,000 in local Technology Literacy Challenge Funds (TLCF) to assist schools in the development of information technology plans. Schools couldn't apply for TLCF grants or E-rate monies without a State approved local information technology plan that was aligned to the Statewide Plan. VISMT hired Bill Romond (FT) and used Gregg Martin, a VISMT Teacher Associate, to assist schools in the writing of information technology plans. VISMT also published a guide, "Local Information Technology Planning" to assist schools in their planning. By 1998 93% of the schools in the state had their local information technology plans approved by the State and were eligible to apply for TLCF grants and E-rate awards. VISMT continues to manage and assist in the development and revision of local plans as needed. Currently Bill Romond is the Director of K-12 Information Technology Planning for the state. Gregg Martin continues to assist him on a part-time basis.

<http://www.vismt.org/programs/infotech/planning/planning.htm>

Action 25: Develop local information technology plans. (Local schools and districts - 9/96)

Current Status: On going

Over 93% of local schools have State approved information technology plans. These plans must be revised every two years. The plans must be coordinated with local school Act 60 Action Plans.

Implications for the revised plan

Action 15: Adopt and publish the statewide information technology plan

This review and a plan for the revision of the current plan should be presented to the State Board of Education early in 2000. The VDE, VISMT and VITA-Learn should be charged with the development of an advisory group that will collect statewide information for the revision of the current plan. The revised plan should be and presented to the SBE for adoption. Once adopted the plan should be published and distributed statewide.

Action 16: Encourage school districts to budget line items to support information technology

Given the local control issues in the state this not an easy task. VDE, VISMT and VITA-Learn should develop materials to assist schools in this task. The revised plan should recommendation that all schools in the state develop line items for information technology support. Data should be collected on what schools are investing to support information technology for the improvement performance of all students K-12.

Action 17: Increase state appropriations for information technology resources.

The Plan should develop strategies to increase state appropriations for information technology resources for the improvement of teaching and learning. The strategies should be linked to instruction and assessment. The strategies should insure that equity is maintained. VED, VISMT and VITA-Learn should be charged with the implementation of these funding strategies.

Action 18: Identify current state, federal, and other funding sources that are available to support information technology.

The Plan should charge VED, VISMT and VITA-Learn with the development of strategies to identify new federal, state and other funding sources that are available to support information technology for local schools.

Action 19: Identify areas where statewide procurement of information technology resources will reduce costs.

The Plan should charge VED, VISMT and VITA-Learn to develop a plan that expands statewide procurement of information technology resources to reduce costs.

Action 20: Publish information about compatibility of various administrative applications.

The Plan should charge VED, VISMT and VITA-Learn with the development of strategies to develop the use of statewide administrative systems that are compatible across the state.

Action 21: Develop models and provide professional development to support effective information technology for district curriculum integration and school management.

VED, VISMT and VITA-Learn should be charged with the development and implementation of strategies to accomplish this Action. (see Actions 20 and 22)

Action 22: Integrate administrative applications with statewide reporting.

VED and VISMT should be charged with the development and implementation of strategies to accomplish this Action.

Action 23: Disseminate the statewide plan to local schools and districts.

VED, VISMT and VITA-Learn should be charged with this function.

Action 24: Provide planning resources, guidelines and technical assistance to support local school district information technology planning that is part of comprehensive school planning.

The current work being done by the School Information Technology Office should continued to be supported in the Plan. The Plan should call for state funds to partially fund this office so it will be able to continue when Federal funds are no longer available.

Action 25: Develop local information technology plans.

The Plan should continue to require schools to develop local information technology plans that revised every two years. These plans should be aligned to the State Plan and approved by the Vermont Education Department. The plans should be part of the schools Act 60 Action Plans.

Recommended Actions for the State K-12 Information Technology Plan

VISION:

Review vision in 1996 plan – Make sure it is a compelling vision that is tied to economic growth, the community, the private sector and schools. Align it with the vision for the Vermont Framework of Standards and Learning Opportunities.

MAKING THE VISION HAPPEN:

Design the plan so promising prototypes are identified, supported, documented and disseminated. This was called for in the 1996 plan but never done. (Recommendation 3 – Actions 9,10, 11.) Fund research to document the impact of information technology on student learning under varying conditions. Disseminate this data and help schools use it.

ACCOUNTABILITY IN INVESTMENTS:

Design the plan so it requires that new student performance measures be developed to reliably access the impact of technology on learning. Recommend that information technologies be used to provide more sensitive and cost effective testing options. Assist schools in using data to drive better decision making.

ACCESS AND EQUITY:

Design the plan so it recommends that the digital divide be tracked by disaggregating data by student population. Recommend that both student achievement data and school-based data be used as interim progress indicators of learning and information technology. Use the findings to adjust resource allocations to achieve equity.

GET STATE INFORMATION TECHNOLOGY RESOURCES

Need to get data on local school district investment in hardware, software, professional development and technical and education support. The new plan must include strategies that insures that the investment of Federal (TLCF) monies will be protected by increased funds from the state legislature, partnerships with businesses, collaborations with high education, and local school budgets.

BUILD THE QUALITY OF EDUCATORS:

Design the plan so it requires the design of educator standards that are aligned with student standards. Incorporate the educator standards for information technology in certification and licensure requirements. This was recommended in the 1996 plan but is still not accomplished (Recommendation 2 – Action 4). Develop a set of standards for information technology professional development. Recommend that funds for professional development not be released without educator and professional development standards in information technology. Access the impact of professional development programs based on classroom practice and student learning.

TEACHER EDUCATION SYSTEMS

Incorporate educator standards for information technology into accreditation requirements for teacher-preparation programs. (see Recommendation 2 – Action 4 – 1996 Plan) Promote partnerships between teacher education programs and K-12 schools to ensure high quality, technology –enriched field experiences for pre-service candidates.

DESIGN STRATEGIES TO STAY THE COURSE

Establish a statewide advisory group responsible for the improvement of teaching and learning through the use of information technology tools.

Build support systems that schools need to use information technologies effectively in teaching and learning (advisory group, on-going professional development for support staff, leadership (school leaders and school boards) professional development.

Build community and corporate partnerships and collaboratives

Alignment with educational initiatives – State (Vermont Framework of Standards and Learning Opportunities, Vermont Assessment System, Vermont Professional Development System), National ISTE, Four Pillars, Milken Seven Dimensions, Professional Development Continuum.

Provide schools with adequate, sustained, flexible funding for information technology learning tools, professional development and technical and education support.

Require schools to meet eligibility criteria for state funds(e.g, quality plans for impacting learning, professional development, sustainability, infrastructure, technical and educational support and accountability.

Update rules and regulations to support the vision(e.g., teacher certification. Facilities, statewide assessments and data collection)

ACCOUNTABILITY

Keep policymakers and the public informed of the progress schools are making toward the vision.

Track schools' progress in use of information technology to improve teaching and learning against specific benchmarks (i.e.student performance and school performance data) – Expand the QED or develop a new instrument.